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chora) of the Dothideaceae, found on the leaves of bamboo at Kanouth, Malabar.—A. WEBER VAN BOSSE (Ann. Jard. Bot. Buitenzorg II. **9**:25–33. 1911) under the title "Notice sur quelques genres nouveau d'algues de l'Archipel Malaisien" has published the following new genera: *Bryobesia* of the Chlorophyceae, *Mesospora* of the Phaeophyceae, *Exophyllum*, *Acanthochondria*, *Oligocladus*, and *Chalicostroma* of the Florideae, and *Perinema* of uncertain relationship.—H. F. WERNHAM (Journ. Bot. **49**:346. 1911) adds another new species from Costa Rica to the genus *Hamelia* recently revised by the same author.—A. ZAHLBRUCKNER (Ann. K. K. Naturhist. Hofmus. Wien **24**:293–326. *pls. 6, 7.* 1911) in cooperation with several specialists under the title "Plantae Pentherianeae" has published a list of plants collected in South Africa by Dr. A. PENTHER; the article includes a new genus (*Pentheriella* Hoffm. & Musch.) of the Compositae.—Different authors (Kew Bull. 1911:343–348) have published several species of flowering plants new to science of which 4 are from Mexico and South America.—J. M. GREENMAN.

Alternation of generations in Delesseria.—Alternation of generations among the red algae has begun to receive much attention, and a paper by SVEDELIUS[10] is one of the latest. The material for his investigation was collected at the Kristineberg Zoological Station, Bohnslän, Sweden, during November 1910. According to the account, in this species fertilization occurs in October, early in November the spermatangia are entirely washed off, tetraspore formation occurs in November, and both tetraspores and cystocarps mature during December and January. The time of his collection, therefore, was too late for securing material for sperm-formation and fertilization, so that there is no description of the male individuals of *Delesseria*, or of the development of procarp and fertilization.

The paper begins with an account of the development of tetrasporangia; then follow tetraspore formation, vegetative nuclear divisions in the tetrasporic plants, and vegetative mitosis in the female plants. Finally there is discussed the problem of alternation of generations in the Florideae. The nucleus of the tetraspore mother cell undergoes the tetrad division, which is preceded by synapsis and diakinesis. In the diakinesis stage 20 bivalent chromosomes are present; after both heterotypic and homotypic divisions, tetraspores are produced with 20 chromosomes; the vegetative nucleus of the tetrasporic plants has 40 chromosomes; and the vegetative nucleus of the female plants has 20 chromosomes. In the resting nucleus there are present chromatin granules whose number is much higher than the double number of chromosomes. In vegetative divisions some of these chromatin granules directly unite with one another and form chromosomes, with no appearance of a spirem thread period. In the heterotypic division all chromatin granules come together near a nucleolus, and then become associated into tetrads. From the number of chromosomes found in tetrasporic and female plants, and the stage at which the reduction division occurs, SVEDELIUS concludes that alternation of generations occurs in the life cycle of *Delesseria* in the sense that the reviewer proposed in his investigation of *Polysiphonia*, and that is followed by LEWIS for *Griffithsia*. SVEDELIUS denies SCHMITZ and OLTMANNS' view that the gonimoblasts of Florideae represent the sporophytic phase, comparable to those of mosses, and that the tetraspores are only the special forms of reproductive cells, comparable to brood cells or "Nebenfruchtformen," and with no fixed place in the life-history.

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[10] SVEDELIUS, N., Ueber den Generationswechsel bei *Delesseria sanguinea*. Svensk. Bot. Tidskr. **5**:260–324. *pls. 2, 3. figs. 16.* 1911.

In closing, he proposes to drop out the term "carpospores," and to substitute "carpogonidia," the reason being that the spore has the haploid number of chromosomes and represents the gametophytic phase, whereas the carpospore has the diploid number and represents only a stage in a prolonged phase of the sporophyte.—S. YAMANOUCHI.

Plant proteins.—ZALESKI[11] is making a study of the transformation of food materials in ripening seeds. The present paper deals only with the nitrogenous materials in their relation to the synthesis of proteins. By applying a method used in 1905, he finds that various non-protein organic N-containing materials are transformed to proteins during ripening. The method consisted in removing green peas from the pod and coats to avoid additions from other portions, and in making determinations of the N in proteins, in amino acids, and in organic bases. The determinations for one portion was made immediately after the removal, and for other portions 2–5 days later. In all cases considerable amounts of amino acids and organic bases were transformed to proteins. A typical analysis follows:

	Control	After 5 days storage
N of protein	79.2 per cent of total N	89.2 per cent of total N
N of amino acids	8.7	4.6
N of organic bases	10.8	5.6
N of other compounds (difference)	1.4	0.8

Under similar treatment, *Zea mais* showed little protein synthesis, and the sunflower only protein decomposition. In the pea the synthesis was less than half as fast in the absence of O_2 as in its presence. Drying of the seeds also greatly hastened the synthesis.

ZALESKI brings together the evidence for the conception that the amino acids resulting from the hydrolysis of a plant protein are the ones involved in its synthesis. He considers the two processes as two phases of a reversible

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[11] ZALESKI, W., Zur Kenntnis der Stoffwechelselsprozesse in reifenden Samen. Beih. Bot. Centralbl. **27**:63–82. 1911.